DOCUMENT RESUME

ED 428 190 CE 078 223

TITLE University Instruction in HRD. [Concurrent Symposium Session at AHRD Annual Conference, 1997.]
PUB DATE 1997-03-00
NOTE 31p.; In: Academy of Human Resource Development (AHRD) Conference Proceedings (Atlanta, Georgia, March 6-9, 1997); see CE 078 221.
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Case Studies; Comparative Analysis; Competence; Conventional Instruction; Core Curriculum; Dietetics; Distance Education; Educational Practices; *Educational Technology; Employment Qualifications; Foreign Countries; *Graduate Study; *Higher Education; Human Resources; *Labor Force Development; Nontraditional Education; Outcomes of Education; Predictor Variables; *Professional Development; Student Attitudes; Student Characteristics; Student Surveys; Teaching Methods; Teleconferencing; Trainers; Training Methods; *Undergraduate Study
IDENTIFIERS Europe; *Human Resources Professionals; United States

ABSTRACT

This document contains four papers from a symposium on university instruction in human resource development (HRD). "Comparison of Student Reactions in Traditional and Videoconferencing Courses in Training and Development " (Julie A. Furst-Bowe) finds few differences in student attitudes about the two types of courses. "The Development of Common Core Learning Outcomes for HRD Professionals which Have Currency across National Boundaries: A European Case Study" (John S. Walton) describes a 3-year study that examined syllabi from HRD training programs at European universities and developed a set of learning outcomes reflecting the range of HRD practices in which professionals operating in a European context should be able to demonstrate competence. A study of evaluation research on graduate-level classes in HRD at Northern Illinois University is reported in "The Video-Teleconference Distance Education Human Resource Development Graduate Classroom: Quantitative Evaluation Research Directed toward Effective Practice" (John A. Niemi, Kevin Owens, Barbara J. Ehrhard). "Relationships among Training, Performance, and Personal Characteristics of Graduates of Three Dietetic Training Programs" (Sally Erickson-Weerts) discusses a study that measured the characteristics of the academic and supervised practice performance and self-efficacy perception of a random sample of entry-level dieticians who graduated from three dietetic training programs. (MN)

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ED 428 190

AHRD

ACADEMY OF HUMAN RESOURCE DEVELOPMENT

1997 Conference Proceedings

March 6-9, 1997
Atlanta, GA

1 University Instruction in HRD

Chair: Brenda S. Gardner, Xavier University

Comparison of Student Reactions in Traditional and Videoconferencing Courses in Training and Development

Julie A. Furst-Bowe, University of Wisconsin-Stout

The Development of Common Core Learning Outcomes for HRD Professionals Which Have Currency Across National Boundaries: A European Case Study

John S. Walton, London.Guildhall University

The Video-Teleconference Distance Education Human Resource Development Graduate Classroom: Quantitative Evaluation Research Directed Toward Effective Practice

John A. Niemi, Northern Illinois University
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Barbara J. Ehrhard, Northern Illinois University

Relationships Among Training, Performance, and Personal Characteristics of Graduates of Three Dietetic Training Programs

Sally Erickson-Weerts, Mankato State University

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CE 074 223

Comparison of Student Reactions in Traditional and Videoconferencing Courses in Training and Development

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The purpose of this study was to provide information on student reactions to a videoconferencing-based course as compared to a traditionally-delivered course in training and human resource development. A classroom-based section and a videoconferencing-based section of an introductory training and development course were taught by the researcher. Course evaluations indicate that students in the traditional classroom were more likely to agree that the instructor used class time effectively and that the instructor allocated sufficient time for class activities.

In 1995, the University of Wisconsin-Stout implemented a new master of science degree program in Training and Development. This program, designed to prepare students for professional positions in the field of human resource development, includes courses in needs analysis, program design, materials development, delivery systems, program evaluation, adult learning and organization development. Demand for this program has been extremely high. Individuals from all parts of the state are interested in pursuing a graduate degree in this area. However, many of these potential students are adults who are working full time and who would not be able to attend courses at the UW-Stout campus in Menomonie. Thus, there was a need to explore alternative delivery systems for these graduate courses.

Several delivery systems were considered including holding weekend courses in cities throughout the state, offering computer-based courses and offering videoconferencing courses through a compressed video system or a fiber optic network. It was decided that the university would pilot three types of alternate delivery systems for the training and development courses during a two-year period between 1995 and 1997. Weekend courses would be offered at a city located in the central part of the state; two courses would be delivered through computer conferencing; and five courses would be delivered via videoconferencing. The courses would be developed, delivered and evaluated during this time period. Then decisions would be made in terms of offering the entire degree program through an alternative delivery system. The study described in this article deals exclusively with the development, delivery and evaluation of the first videoconference course.

This course, Training Systems in Business and Industry, is a general survey course that provides an overview of employee training systems in the United States and an introduction to the various models used to design, deliver and evaluate training processes and programs. It is a pre-requisite course for all students in the master's degree program.

It was decided to deliver this course using two videoconferencing technologies: the WONDER Network and compressed video. The Wonder Network (Wisconsin Overlay Network for Distance Education Resources) network is a fiber-optic network dedicated to connecting classrooms at nine universities and technical colleges throughout the state. This network, which became operational in the fall of 1995, is a full-motion, high quality, video-conferencing system that allows up to four sites to be connected and viewed simultaneously. Sites that are not currently part of the system can be connected to the network through compressed video or other technologies.

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The videoconferencing format was chosen for a number of reasons. First, it would provide relatively easy access to students located in various parts of the state. Second, this format would allow for two-way audio and video communication between the students and the instructor. In addition, according to a 1995 study, 18% of all U.S. companies with more than 100 employees are using videoconferencing to deliver employee training (Industry Report, 1995). Therefore it would be appropriate to model the use of this technology to students who may need to use videoconferencing systems when they are working as training professionals in the field. In addition, the students would be able to obtain experience using this type of technology to deliver instruction.

Statement of the Problem

Little is known about the effectiveness of delivering training and development courses through videoconferencing. Few studies have examined the use of videoconferencing systems in master's degree programs in training and development or how graduate students react to training and development courses being delivered in this manner. The purpose of this study is to provide information on student reactions to a videoconferencing-based course as compared to a traditionally-delivered course in training and development.

Hypothesis

Although little research has been conducted in the use of videoconferencing in graduate training and development programs, most research evaluating the outcomes of distance learning in higher education has shown consistent positive results (Kendall & Oaks, 1992). No differences, in terms of achievement, between traditional instructional methods and distance learning have been proven. In addition, students have shown positive attitudes toward distance learning. Therefore, the hypothesis for this study was that there would be no significant differences in student reactions between students in the traditional classroom and students in the videoconferencing group.

Literature Review

The use of distance learning in higher education is expanding. According to a 1995 Internet survey of campuses, 55 percent of the 300 respondents indicated that their campus was involved in distance learning, mostly providing credit courses (Sherron, 1995). There were a number of delivery systems being utilized by the respondents, including electronic mail, print, videotape, computer-based and audio-based formats. However, the survey results indicated that the most dominant technology for the delivery of distance education was two-way, interactive television, with one-way television a close second. Over past few years, there have been several studies conducted to determine if telecourses are as effective as traditional courses in higher education. Researchers have attempted to evaluate achievement of learning objectives, course completion rates, student reactions and instructor effectiveness in the television classroom.

A recent study at John C. Calhoun State Community was conducted to determine if there was a significant difference in grade distribution between sections of a course using a telecourse format and sections taught by the same instructor in the same term utilizing a traditional classroom format (Searcy, 1993). The study, which examined data from 18 telecourses and 18 traditional courses concluded that there was no significant differences in averages grades between students in the telecourses and students in the traditional classroom. However, the results indicated that student completion rates were higher in the traditional sections.

In another study, 31 graduate students enrolled in a teacher education course that was delivered through a satellite network were surveyed to determine their reactions to the course. The responses indicated that the majority of the students felt the satellite course was either as interesting or more

interesting than traditional instruction, and that they would enroll in another course offered through this technology (Barker & Platten, 1988). However, a study conducted by Ritchie and Newby compared the reactions of college students in three classroom environments: traditional classroom, television classroom with instructor and a distance education classroom with no instructor present. The results of this study indicate that the students in the distance classroom rated their experience as less enjoyable and believed they had a lower level of involvement than the students in the other two class settings (Ritchie & Newby, 1989).

A study at Texas Tech University examined learning styles, academic achievement, attitudes toward learning environment and course completion rates of graduate students who attended an education course (Gee, 1990). One group of students was on campus, the other group was at a remote learning site. Both groups were taught simultaneously using the same course content. Although there were few significant differences between the two groups on the variables examined, the results indicated that learning style preferences may affect academic achievement and attitude of students involved in both traditional classrooms distance learning.

In a study that is most similar to this study, 45 graduate students who had completed one or more telecourses in the Master's Degree program in Adult Education at the University of Wyoming were surveyed and 15 students were interviewed regarding their perceptions of the courses (Silvey, 1994). The majority of students expressed positive opinions regarding the content of the course and the delivery system used. Students were most dissatisfied with the administrative support for distance learners and the lack of orientation they had received in regard to this approach to learning. Nearly all of the respondents said they would recommend the telecourses to others.

Finally, a study at Washington State University compared the perceived effectiveness and satisfaction of university faculty teaching in traditional and telecourse settings (Kendall & Oaks, 1992). In general, the 46 instructors surveyed were satisfied with the instruction they provided over the interactive television system. However, the respondents expressed concern over the lack of student-teacher interaction and class participation in the distance classes.

Methodology

This study utilized a quasi-experimental method to compare effectiveness of a traditional course to the effectiveness of the same course taught via videoconferencing (WONDER network and compressed video). During the fall of 1995, the researcher received training on the use of the videoconferencing hardware and software and spent several hours developing lessons and materials for use in the distance learning course. During the spring of 1996, two sections of the introductory training and development course "Training Systems in Business and Industry" were taught by the researcher. One section was taught to 28 students on campus utilizing a traditional classroom setting. A second section was taught to 12 students in four cities across the state via the WONDER network and compressed video technology. The WONDER sites included Chippewa Valley Technical College in Eau Claire, North Central Technical College in Wausau and Fox Valley Technical College in Appleton. In addition, a site at UW-Milwaukee was connected via the PictureTel compressed video system. It is noted that the unequal number of students in each class may effect the results of study. In future semesters, it is anticipated that there will be larger groups of students in the distance learning courses.

Both the traditional course and the distance learning course met for three hours per week for 16 weeks. Both classes followed the same syllabus, covered the same content and used the same assignments and projects, including a final group presentation. The instructor communicated with the students at the distance sites through mail, fax, telephone and electronic mail, although not all of the off campus students had Internet access. Therefore the instructor was unable to utilize discussion lists or other Internet resources to facilitate communication. Each videoconference class was videotaped in case of technical difficulties at any of the sites. In addition, these videotapes were used by the instructor for self-evaluation. This allowed the instructor to learn firsthand which methods techniques were successful in each of the class sessions (Hirth, 1993).

A variety of instructional methods were used in both classes including lectures, small group discussions, large group discussions, demonstrations, case studies, games and simulations. There was also extensive use of instructional media including overhead transparencies, videotape, and CD-ROM. A number of computer-based training programs and Internet resources for training were demonstrated during both classes.

There were also guest lecturers in both classes, including training directors from organizations such as Miller Brewing and Wausau Insurance. In the videoconferencing class, some of the guest presenters spoke from the various distance sites. This arrangement was used to help the participants at the remote sites feel more connected and less like spectators (Smith, 1996). In addition, the traditional class spent one class period touring the training facilities for a state plastics manufacturer.

Nearly all of the students who began the courses completed the course at the end of the semester. One student dropped out of the traditional class due to health reasons. There was also a student in the telecourse who was experiencing health problems; however, she was able to remain in the course by watching the videotapes, having phone discussions with the instructor and the other students, and continuing to submit assignments and projects. The student in the traditional class was given the option of completing the class through self-study but chose to repeat the course at a later date

At the conclusion of the course, every student was given a course evaluation to complete and return to the instructor. The evaluation instrument contained 18 items covering the following five areas: instructor preparation, presentation methods, class time utilization, instructor-student communication and evaluation methods. The students were asked to provide their opinions on each item by indicating their degree of agreement or disagreement on a four-point, Likert-type scale. There was also space at the end of the form for students to write in comments or concerns. This instrument, which was developed by a team of UW-Stout faculty members, has been used by approximately 25 instructors in the Communication, Education and Training Department at UW-Stout each semester for the past six years. Individual and department means on each item are calculated and results are shared with instructors for the purpose of instructional improvement.

The students did not write their names or place any other identification on the forms. In the traditional class, a student delivered the completed forms to the department office of the researcher. In the distance section, each student was mailed a form and a postage-paid envelope to mail his or her completed form to the department office. One-hundred percent of the students in both of the sections returned the evaluation forms. The forms were then delivered to the campus computer center for data analysis. Percentages, means and standard deviations were calculated for each item in both of the classes. Then t-tests were conducted to determine if their were significant differences between the two classes on any of the items.

Results

The results of the evaluation forms indicated high levels of student satisfaction with both of the courses (see Table 1). In 2 of the 18 items there were significant differences between the traditional students and the distance education students. In these items, students in the traditional classroom were more likely to agree that the instructor used class time effectively and that the instructor allocated sufficient time for class activities. Overall, there was a great deal of similarity in the responses of the two groups.

Overall student comments from both sections of the course were extremely positive. In general, students wrote that the course was well organized and covered relevant material. There were also several positive comments about the subject matter knowledge, overall presentation skills and positive attitude of the instructor. Students from both groups also commented on the large number of assignments and projects in the course, and some students felt the workload needed to be distributed more evenly throughout the semester.

However, there were a number of comments that appeared only from students in the videoconferencing group. Although several students indicated they appreciated the convenience of

taking the course near their home, there were also some concerns about this method of delivery. These included concerns about class time being lost due to occasional technical difficulties with the equipment, difficulty scheduling time for group work among working adults living different cities, and the inability to interact with the instructor in person during class sessions. Finally, some of the distance students indicated they would have preferred a more extensive orientation to the distance learning system during the first class session.

Table 1

Comparison of items on student's evaluation forms based on course delivery system

Statement	Students		
Degrees of Freedom = 38	Campus (N=28) *M*	DE (N=12) *M*	*t*
The instructor showed evidence of advance planning for this course.	3.96	4.00	.64
The instructor showed evidence of advance planning for class sessions.	4.00	4.00	—
The instructor explained course objectives and evaluation procedures.	3.93	4.00	.91
The instructor used appropriate instructional materials.	3.89	3.92	.22
The instructor showed enthusiasm for his or her subject.	3.96	4.00	.64
The instructor posed challenging questions and stimulated discussion.	3.68	3.75	.43
The instructor varied the instructional methods used.	3.68	3.75	.39
The instructor used class time effectively.	3.96	3.75	2.12*
The instructor allocated sufficient time for class activities.	4.00	3.83	2.31*
The instructor met with the class on time and regularly.	4.00	4.00	—
The instructor treated all students equally.	3.82	4.00	1.50
The instructor was fair in class discussions	3.86	3.83	-.19
The instructor was available outside of class.	3.79	3.75	-.24
The instructor provided personal assistance if needed.	3.89	4.00	.90
The instructor had a positive attitude toward me.	3.93	3.92	-.13
Tests and quizzes covered the assigned content.	4.00	4.00	—
The instructor reviewed all tests and quizzes.	3.96	3.91	-.42
Evaluation methods were based on course objectives.	4.00	4.00	—

* = significant at the .05 level

Conclusions

Based on the student data, it can be concluded that there were very few differences in the reactions of students who completed the videoconferencing course and students who completed the traditional course in Training Systems in Business and Industry. In 16 of the 18 items included on the course evaluation form, there were no significant differences between the two groups. Therefore, the hypothesis for this study was supported. It can be concluded from these data that student reactions to the videoconferencing course were generally very positive and that videoconferencing may be considered an acceptable delivery method for graduate courses in training and development at UW-Stout. Because of the nature of this degree program, the use of videoconferencing may be particularly appropriate as it may be used to provide students with the knowledge and skills needed

to solve instructional or training problems, specifically those associated with geographically dispersed trainees (Wagner, 1992).

The results of this study and several other similar studies appear to indicate that one of the keys to success in distance learning is the instructor (Barker & Baker, 1995). With a well prepared instructor, the technology itself can become almost transparent. However, no technology can overcome lack of preparation or poor teaching skills. Therefore distance education instructors need to be thoroughly trained in how to use the technology, demonstrate polished presentation skills, create opportunities for interaction, develop materials and use media effectively (Barker & Baker, 1995). This researcher and others have observed that it takes a great deal more time to prepare for distance class sessions and more effort to compensate for the physical separation from students (Hirth, 1993).

Based on the data from this study, instructors teaching videoconferencing courses may want to consider the following recommendations. Distance educators may want to spend part or all of the first class session providing an orientation to the system and explaining how the course will be conducted over television. Allowing the students to practice using the equipment and to become comfortable with the technology is important. Distance instructors may want to consider using class time differently than they would in a traditional setting and allowing students more time to work on group projects and activities during class. Instructors may also consider arranging for all of the students to meet at least once in person or visiting each of the distance sites at least once during the course to meet and interact with the students. Following these recommendations may help to increase interaction and decrease feelings of isolation in the distance learning classroom.

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The Development of Common Core Learning Outcomes for HRD Professionals which have Currency across National Boundaries: A European Case Study.

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This paper describes a 3 year study developing a set of learning outcomes which reflect the range of HRD practices professionals operating in a European context should be able to demonstrate knowledge of and competence in. They are based on an analysis of Masters degree syllabi from European Universities forming the EURESFORM network and have been field tested for practitioner relevance. The outcome is a EURESFORM certificate recognised by the member universities.

One of the consequences of the intensifying global competition and technological advances of the 1990's is the need and - in conjunction with the development of global communication networks opportunity for greater transnational sharing and transfer of learning. Training and Development managers and other HRD practitioners must discover how to operate across national boundaries, as part of the on-going professional process of learning from others and imparting learning to others. One of the lessons of the past is that countries cannot afford to be ethnocentric and assume that a given nationality is the repository for all that is best. Yet there has been very little empirical research into whether there is a convergence (or indeed a divergence) in HRD practices in different countries which might help govern trans-national learning and communications. Is there a common core of activities which reflect HRD practice across a variety of national spectrums? How can emerging practice be transmitted across national and linguistic boundaries in a way that makes sense? It is against this backcloth that the European case study has been conducted.

The Role of Universities In the Evolution of HRD Practice Universities offering practitioner-oriented Masters level HRD programmes have a key role to play in the development and assessment of international standards and practices for the profession. University course designers can facilitate convergence by sharing ideas on programme inputs and outcomes, incorporating features from other programmes as appropriate. This has often been done at the national level. It is far less common at an international level. Indeed European Universities have no agreed set of HRD programme outcomes which meet the following conditions. 1. They can be demonstrated by individuals successfully achieving Masters level qualifications taken in different European countries. 2. They are recognised as professionally relevant across the national boundaries of European Union member states. 3. They satisfy the needs of employers looking for high-level practitioners with the breadth and depth of knowledge to operate transnationally as well as domestically.

The Case Study This case-study based project describes a transnational, European, inter-university approach leading to the production, testing and certification of a set of HRD programme 'core learning outcomes' which are designed a) to cover the core role requirements of HRD practitioners operating within their own country and b) to indicate to employers that certificate holders have a proven ability to transcend national cultural boundaries. The outcomes can be seen as a set of occupationally specific 'standards' which are intended to be precise, agreed and generally applicable descriptions of what HRD professionals operating in the European arena are expected to be able to know and do. Certification should be awarded on the basis of valid and

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reliable assessments, made in such a way as to ensure that demonstration of the 'standard' can be achieved in the work situation. Establishing such a set of standards becomes particularly daunting when trying to get agreement from centres operating in different countries with their own traditions, sensitivities and languages. Indeed, one of the most significant learning points from the case study has less to do with the physical generation of the standards than with understanding the 'soft communication skills' used in the process of their development.

Research questions Through the medium of the case study the following research questions are addressed. Can a set of HRD outcomes be specified which would satisfy the needs of practitioners/professionals operating in more than one country? How many such outcomes should there be, and of what order of generality? Can agreement be obtained on these outcomes from University providers representing different European Union member states? Can such outcomes be assessed in a way which would meet the needs of employers? Can such outcomes be certificated by providers (universities) from more than one country? Where would such outcomes fit into existing qualification structures such as Masters degrees offered by individual universities?

Hypotheses The case study has operated under a series of working hypotheses. The first is that there is a convergence of practices in HRD across European Union member states as a consequence of macro European initiatives and of globalisation pressures. such a working proposition only presupposes common ground. arguing for a convergence of practice is not the same as saying that there is a uniformity of practice or that each country has reached the same state of development in terms of its understanding of HRD. The second is that universities as centres of learning have a key role in terms of expanding and disseminating knowledge and good practice. For that to take place their programmes should reflect an awareness of domestic and international practices happening 'out there', a process facilitated by programme directors across the international community working together and sharing ideas. The third is that an outcome driven model, based on assessing a set of predetermined standardised outcomes, is a more effective way of achieving agreement on professional HRD qualifications recognised across national boundaries, than an input driven model based on a common syllabus. The fourth is that there is a demand for the articulation of a common set of standards to underpin emerging HRD practices across Europe.

Methodology

The methodological approach to the case study and the generation of the learning outcomes is located within a phenomenological, interpretative paradigm, with an emphasis on seeking and imparting shared meanings. The case study is essentially a piece of action research. Easterby-Smith et al (1991) contend that there are two features normally apparent in action research projects. '1. a belief that the best way of learning about an organisation or social system is through attempting to change it, and this therefore should to some extent be the objective of the action researcher; 2. the belief that those people most likely to be affected by, or involved in implementing, these changes should as far as possible become involved in the research process itself.' (Easterby Smith 1991 p34) Both of these features figured strongly in the approach to the study. Accordingly the case study adopts an essentially ethnographic perspective - the researcher is part of the system under study. It incorporates both comparative and longitudinal elements, and entails revisions - as appropriate - to hypotheses on the basis of field based research data.

The supporting methods include 1. Comparing and contrasting the learning approaches represented in the different programmes, and gaining an understanding of national similarities and differences in qualification design. 2. developing a set of outcomes which represent the core features of HRD practices across a range of those European countries involved and incorporating these into programme assessment. 3. Testing the outcomes in each country represented by the network through techniques such as repertory grid analysis, modifying as necessary.

The initial development of the core learning outcomes is based on one individual (the author of this paper) acting as 'expert' on behalf of the broader interest community, who drew upon field

knowledge and 'cognitive grip' within a given thought world and who relied upon interpretation acumen. In this context, a 'thought world' can be defined as 'a community of persons engaged in a certain domain of activity who have a shared understanding of that activity'. (Dougherty 1992) The given 'thought world' or 'domain of activity' is of course that of HRD. The 'broader interest community' are the constituent members of EURESFORM, the European network of university providers of Masters degree level professional HRD programmes which functioned both as commissioners of and participants in the research exercise. That 'permission' was given by the 'broader interest community' to one of the constituent members entailed a degree of trust that would not have been possible if the EURESFORM network had not been in existence for some time.

From the original development of learning outcomes, each constituent member of the EURESFORM group became 'researcher' and 'expert', drawing upon their own field knowledge and cognitive grip to check out meaning within their own framework for HRD. The proposed learning outcomes were subjected to translation into the languages of the respective countries. Students on the respective Masters programmes also became participants in the research and their field knowledge was drawn upon as the 'broader interest community' was extended. These 'students' were all in full-time employment, experienced practitioners in their own right, and coming from a broad spectrum of HRD work backgrounds.

In the hermeneutic tradition, syllabi from the various University programmes were treated as 'texts' and became one of the description vehicles to provide the researchers with raw data and thematic content enabling cross comparisons and interpretations to be made. However, the researchers did not rely unduly on textual interpretation. Syllabi tend to be historical in terms of their content and reflect when they were written. In a dynamic arena such as HRD what is written can quickly become outdated. To compensate for this, emergent themes from the literature and from each country's practice were drawn upon and discussed collectively. This ensured that more was derived from what was happening in the field. Throughout discussions members were treating each other as experts, and in learning from each other were articulation new insights and understandings. Raw data and themes based on the syllabi and the EURESFORM meetings were converted by the author into a composited set of 'standard terms' acting as domain specific anchors. These operated as an acceptable compromise in terms of internal homogeneity and level of compression. (Laukkanen 1994) These 'standard terms' after refinement and field testing were the core learning outcomes, the English version of which is given below.

Core Learning Outcomes EURESFORM To achieve EURESFORM Professional Recognition candidates acting as a manager or consultant will have been assessed against their ability to 1. Act in their professional dealings according to professional standards. 2. Demonstrate a comprehensive approach to managing human diversity and providing equality of treatment in professional dealings. 3. Act as a consultant (internal or external) to an organisation, taking into account its complexity and the dynamics of the provider-customer relationship 4. Know how to carry out a strategic appraisal of own or client organisation's strengths and weaknesses, with particular attention to its human resources. 5. Know how to conduct an environmental analysis, including key external human resource factors, identifying issues which influence organisational policy. 6. Conduct an internal and external stakeholder analysis to situate one's position and the role of HRD in the organisation. 7. Establish an information system to identify current internal and external trends in HRD and feed the information back to the organisation. 8. Know how to develop appropriate HRD structures and processes to enhance organisational ability to respond to strategic issues/problems 9. Establish the relationship between Human Resource Planning and the identification of competences required. 10. Know how to draw up an HRD policy for an organisation incorporating as appropriate internal and external employee and non employee development needs. 11. Contribute to designing, facilitating and evaluating processes of change which promote organisational learning 12. Evaluate the advantages and disadvantages of outsourcing as opposed to in-house delivery of HRD programmes 13. Negotiate with decision makers to obtain and allocate physical, human and financial resources to achieve policy objectives. 14. Influence managers and

stakeholders to support HRD. 15. Develop an internal or external marketing plan for HRD. 16. Carry out job analysis, define clusters of competences and develop appropriate processes (including organisational) to build on those competences 17. Distinguish between and recommend training and non training interventions to the resolution of organisational issues. 18. Translate HRD policy into training plans using appropriate project management and financial management methods. 19. Produce appropriate cost/benefit analyses and performance indicators to evaluate corporate HRD initiatives. 20. Evaluate HRD programmes at learning, behaviour and job performance level and then design appropriate modifications. 21. Manage effectively an HRD budget including cost control. 22. Produce a dissertation level document which demonstrates a critical understanding of the problems and opportunities of research in the HRD field whilst retaining a strong focus on practical and implementable outcomes for action. 23. Understand HRD practices in the European Union. 24. Resolve an HRD issue to the client's satisfaction in a European country other than ones own.

The actual wording of the outcomes reflected syllabus content, but was not written in identical terms to those found in any of the individual syllabi. Some of the outcomes were not represented in any of the original syllabi, but were incorporated as important themes. One of the issues around the 'standard terms' was that they did not always translate readily from one language to another and were capable of misinterpretation. Handling this question of 'translation' and providing for 'portability' of meaning and understanding across languages is one of the key issues arising from the case study.

Use of Repertory Grid The Repertory Grid is a derived technique from Personal Construct Psychology (Kelly 1951) for identifying the basic bipolar expressions which make up an individual's construct system wherby personal meaning is given to events. Repertory Grid analysis can also be used to identify the meaning which a whole group of respondents share about a topic of common concern. This originated from a method of content analysis developed by Honey (1979) and for which a very high degree of reliability can be obtained. It is this use of Repertory Grid analysis which was drawn upon as a case study method to test out the importance attached to the learning outcomes.

Narrative Background to Case Study and Research Activities

The three year research project was undertaken through the auspices of EURESFORM, a European network of universities and other Higher Education Institutions providing post-graduate qualifications for Human Resource Development (HRD) practitioners. U.K members include London Guildhall University and Lancaster University. Other members include the University of Barcelona (Spain); the University of Tilburg (The Netherlands); the Conservatoire National des Arts et Metiers (CNAM) (France); the Irish National College of Industrial Relations (Eire).

The aims of EURESFORM include the mutual recognition of European wide HRD qualifications; exchange programmes for HRD staff and students; promotion of contacts between alumni of networking institutions; sharing knowledge through workshops, publications and research. In October 1993 European funding was successfully sought for development work on establishing a mutually recognised European Core HRD programme.

In January 1994, at a weekend meeting held in Barcelona the HRD programmes of each of the participating institutions were translated into English and compared in terms of structure and outcomes. It quickly became apparent that there were substantial differences in approach to programme design which would be extremely troublesome to overcome if one adopted an input-driven approach. For example there was no consistency on how many hours of study made up an accredited Masters course. Even more significant were institutional rules to do with course validation and obtaining course approval, which differed not only country by country but also university by university.

In June 1994 at a further meeting at Leiden in Holland it was agreed that the simplest way forward was to work towards a EURESFORM Certificate which would be recognised by each of

the participating institutions. It would contain the logo of each of these Institutions and would list 20 or so learning outcomes covering core HRD themes common to the profession irrespective of the country in which practised, and also European based outcomes specifying that certificate holders had a) demonstrated knowledge and understanding of HRD institutions and practices across Europe. b) successfully conducted some action research as an HRD consultant in a European country other than their own.

Each participating institution would need to incorporate the agreed learning outcomes into their own programmes if their students were to achieve a EURESFORM accreditation. In order to ensure quality control, each Learning outcome would need to be assessed by both the 'home' institution and be externally validated on a sample basis by their external examiners. On October 1994 in Paris a set of core learning outcomes based on the Programmes of the member universities which could form the basis of the certificate of accreditation were discussed. These had been developed in the interim by the writer of this paper.

These outcomes were translated into the languages of the member institutions and checked out with students and practitioners in the field for their clarity and comprehensiveness. At the next meeting, in Paris in March 1995, they were refined and modified to incorporate views expressed. Further field work has since taken place and examples are reported below. At the EURESFORM meeting held in July 1995, they were finalised prior to publication. Arrangements for certification were discussed. Since then three further meetings have taken place, two in Paris in Autumn 1995 and 1996 and one in Barcelona in Spring 1996., at which attention was given to ensuring that the ongoing work on the testing and certification of the learning outcomes continued. The first EURESFORM certificates were awarded in January 1997.

The next research objective, building upon the 'core learning outcomes' is to develop a European 'personal skills card' or 'passport of competence' for training instructors, administrators, managers and other HRD practitioners. This will form a record of individual vocational achievement incorporating a European skills and knowledge dimension that will be of value to employers and linked to life-long learning and continuous professional development. EURESFORM is seeking industrial partners operating on the European stage to become involved in the development process.

A number of exchange visits have taken place between students of the incorporated institutions to facilitate the achievement of learning outcomes 23 and 24. For example, in May 1996 the University of Tilburg hosted a group from London Guildhall University, followed soon after by a similar group from the University of Barcelona. EURESFORM has developed a set of guidelines for these Exchange visits. The focus of the exchanges is to provide opportunities for mutual exchange of information, views and ideas on training and HRD issues with practising training managers and HRD practitioners of the hosting countries and to make international comparisons. There must be a structured exchange with HRD colleagues from a similar vocational area (industry, public services, health etc.) involving a brief introduction to the host organisation, its current development; introduction to the key factors and data of a problem, a current situation that has been/is managed by the HRD specialist; visitor's approach to the solution of the problem to the host's satisfaction.

Example of Field Workshop on EURESFORM Learning Outcomes In April 1995, a one day workshop was held at London Guildhall University to obtain the views of a number of past and current MSc HRD students on a March 1995 version of the Common Core Learning Outcomes.

Questions for workshop. 1. The outcomes have been translated from English into French and back into English. Do they make sense? Would you change any of the wording to make them clearer? 2. Are they sufficiently comprehensive? Do they provide a set of outcomes which you would expect an HRD practitioner operating at European level should be able to demonstrate? anything you would add? Delete? Modify? 3. Which of the learning outcomes do you think you would be able to demonstrate by accreditation of prior certificated learning and accreditation of prior experiential learning? How would you demonstrate this? 4. Which of the learning outcomes do you feel you currently would not be able to demonstrate? How might this be rectified? 5. Would you be interested in seeking a Euresform Certification? What do you think its market

value is? 6. Any other points you feel would be helpful? The following summarises the key points arising. *Question 1.* On the whole the outcomes madesense but needed some modification to make them clearer. The participants provided suggestions for revised wording. *Question 2* The outcomes seemed to be comprehensive and to cover the field. There was some feeling that the European dimension was understated and could be developed. *Question 3* Answers depended on what previous qualifications participants had undertaken before going on to do the Masters. All present felt they could demonstrate the theoretical 'know how to' outcomes with the exception of that dealing with an understanding of the HRD practices in the European Union. Some representatives felt they also could demonstrate all of the practical learning outcomes with the exception of the European component. *Question 4* One representative said that she had never been assessed against some of the practical areas and had never had to manage an HRD Unit. No one considered they could demonstrate the European learning outcomes. *Question 5.* It was felt that the market value of a EURESFORM qualification depended on the outcomes being seen to be vocational and practical by both students and employers. The question was raised whether proficiency in EU languages could be recognised since this could add to its market value. One solution proposed was to have a 'EURESFORM Certificate with languages' - and list the languages for those students who could demonstrate proficiency in more than one language. The question was also asked whether existing Masters (and supporting Certificate\Diploma) qualifications in HRD could be modified to incorporate the learning outcomes, and marketed in the UK as an 'automatic accreditation' to successful students. This was considered by those present to be a desirable step forward. *Question 6* It was felt to be unclear whether the outcomes led to a 'qualification' or an 'accreditation'. The balance between 'know how to' outcomes and those requiring practical demonstration was discussed in general terms. It was felt that the emphasis should be on practical demonstration if the qualification was to have any market currency. It was also felt that how easy it would be to demonstrate the outcomes in practice depended on individual candidate's job role.

Similar workshops were held at CNAM and at Lancaster University, and the conclusions fed back to the EURESFORM research group. They have been influential in refining the outcomes, and helping individual member institutions to modify their Masters programmes to ensure that they can be more effectively met.

The Use of Repertory Grid At the University of Tilburg one of the students, Mrs. drs Hanneke Visser, organised a Repertory Grid focus group exercise in 1995 on the learning outcomes as part of her Masters Dissertation (Visser 1996). The objective was to prioritise the learning outcomes in terms of their relative significance for members of the focus group. She was able to draw upon a proprietorial software package developed by the consultancy Group 'Priority Search', modified for the exercise.

Each member of the focus group was provided with the Learning outcomes organised in pairs with 3 line in between. For example,

Act in their professional dealings according to professional standards ---------- *Evaluate HRD programmes at learning, behaviour & job performance level*

The instructions were that for each pair, individuals should choose the outcome most significant to them in terms of their current job role by putting a mark (one only) on the appropriate point on the line. The closer the mark is to a given outcome, then the more important it is to the individual. If the individual finds both outcomes equally important or unimportant, then the mark should be put in the middle. Every learning outcome appeared three times, on each occasion paired with a different outcome. Individual forms were then scanned and an overall priority list resulted. The software package was also able to differentiate between preferences on such factors as gender.

Subsequently, a similar exercise at Tilburg was conducted with a group of HR practitioners from London Guildhall University in May 1996 to establish national similarities and differences, recognising that the groups were too small to make generalisable observations with any degree of validity. It was revealing (and somewhat disappointing) that neither the UK nor the Dutch Group

felt that knowledge of European practices in countries other than their own were particularly significant in terms of their current job role. The Dutch group felt that managing diversity had little significance for them, nor did 'managing effectively an HRD budget including cost control', in marked contrast to the UK Group. Overall, however, both groups felt that the learning outcomes had salience for them. In terms of future research work, the use of this version of repertory grid analysis is highly promising for establishing areas of convergence and divergence between countries.

Issues of Corruption of Meaning in Translation

A central issue in an emerging area such as HRD is to obtain some reassurance that what is being talked about in one language is the same as that imputed after translation into another. This is particularly problematic when dealing with highly complex notions and generating a new vocabulary. HRD, as a field, is notorious for the technical use of vocabulary, words that elsewhere are used with totally different connotations, obvious examples being 'competencies' and 'development'. Even for those speaking the same language within the profession meaning is often hotly contested. As Megginson et al (1993) point out 'The same or similar terms and expressions can sometimes be associated with quite different meanings.....Such differences may not be problematic, but where confusion does exist it can seriously compromise people's attempts to work together in HRD.....Don't assume that the people you are working with either share your understanding or are as well informed as you are. Effective working with others requires a common and shared comprehension of at least the basics which has to be established before action is contemplated.' (Megginson et al, 1993)

Because of the emergent and dynamic nature of the profession and its practices one cannot assume a common pre-existent knowledge base, even in-exchanges between practitioners in a given country. This becomes amplified in exchanges between countries where there may well be sensitivities if representatives from one country seem to be imposing their view of the world on others. Jankowitz (1996) challenges the assumption that to convey ideas, practices and techniques from one language to another, the only issue is the adequacy of one's translation. He holds that there is no guarantee in a translation exercise that the associations which terms carry in one language are automatically evoked in the minds of other nationals. For example, there are no indigenous words in the Slavonic languages for such basic terms as 'management', or 'learning' which convey sufficient associations for the 'western' concepts to be transferable in full. 'Management' is understood to mean simply 'governance', devoid of such English language associations as 'coping' or 'developing'. 'In short, adequate linguistic translation is impossible without the pre-existence, at some superordinate level, of a precise conceptual mapping between differing representations of the same phenomenon in the two separate cultures. Where this does not exist, 'translation' may succeed in a dictionary sense but will fail at the level of mutual meaning and understanding.' (Jankowitz op cit)

This is akin to the confusion and misunderstanding that can be encountered when delivering training across linguistic boundaries unless two interpreters are used - one to carry out the translation and the other to monitor and feed back the extent to which the intended meaning has been conveyed. Lee (1995) suggests that to ease the problem you need a 'cultural catalyst' - someone with a bicultural background who also possesses detailed subject-based knowledge.
We confronted this issue of loss and distortion of meaning in developing the EURESFORM core learning outcomes. The process entailed translation of the original by an 'expert'; subsequent checking out of meaning in the recipient country; modifications and rewording in the recipient language; retranslating back; checking for distortions and so on - a dynamic, on-going reciprocal process to establish shared meaning. This is one of the reasons, methodologically, for reducing the number of learning outcomes. The more that are presented, the more the problems of translation, interpretation and possible misinterpretation multiply.

The Development of 'Soft Communication' Skills

Language became an issue in a different way at the EURESFORM Meetings when the learning outcomes were discussed. At the outset it was agreed that all conversations would be conducted in english, the one language in which all participants were reasonably proficient. Nevertheless, for the majority it was at best their second language and proficiency varied.
In such meetings it proves helpful to see language as a symbol system used for encoding and modelling phenomena (Jankowitz 1996). This draws attention to the structural and functional issues of projecting meaning and to the constraints on what is possible to represent. Quite apart from not knowing basic meanings, misunderstandings can occur because of differences in grammar; in orthography (the limitations and constraints present within the symbol system and its articulation); in idiom (habitual ways of expressing meaning preferred within a culture) and in metaphor (the cultural associations which users find most useful in representing particular phenomena) To take a simple example of orthography, the english manager or the external consultant addresses colleagues, customers, subordinates and clients with the same personal pronoun, 'you'; the French manager or consultant will use tu to intimates and 'vous' when being more formal.

Our experience was that developing appropriate 'soft communication' skills was vital in securing the energy levels and commitment required to sustain the project and compensate for any language barriers. In this context, 'soft communication' skills relate to those mechanisms used outside of normal discourse to ensure that meaning is imparted and that people work effectively together. Thus 1. Where all discourse is held in English, use of idiom needs to be very careful and sparing. Idioms are, by definition, quite arbitrary, and must be learnt case by case if one is to be effective in a language other than one's own. Idioms are often not understood, or even worse, misunderstood by someone struggling to translate. 2. Ideas are more easily understood when represented in diagrammatic form. Wherever possible we would use white-boards or flip-charts to produce simple diagrams and models. 3. Visual display of the written word always facilitates understanding. All technical data (such as the learning outcomes) needed to be on display and checked out carefully for meaning. All the agreements needed to be handled similarly to give people chance to gain a full understanding before commitments were given. Seeming agreements were often changed as clearer understanding was achieved and permission was always given to go back over a point that had previously been discussed. 4. English speaking delegates needed to speak more slowly than they would normally, being quite careful in their choice of vocabulary whilst not 'speaking down' or seeming to 'speak down' to other delegates. 5. The fact that the chairperson did not have English as his first language helped control the pace of the discussions. 6. There was a need to develop 'double-density' observation skills, to recognise when individuals were losing concentration or getting tired because of the intensity of the interpretation process. 7. Timing of meetings was crucial. A full day, starting in the morning and finishing in the evening proved too tiring. Our strategy was to commence meetings in the afternoon, have a meal together in the evening to make a social occasion of the get together, and then reconvening the following morning for a further half-day.

Results and Conclusions

The outcome driven approach, based on the findings of this case study, is a more effective way of gaining international agreement than an input driven model, and has led to a satisfactory resolution of the research questions. The learning outcomes have been published in different languages to the satisfaction of EURESFORM members and their students and Certificates have been awarded. They are a 'first-generation' product subject to refinement and modification based on feedback from the 'broader interest community'. The number of outcomes should be kept relatively few (in the order of 20-25) and should be of quite a high level of generality, partly to facilitate translation - too many outcomes would create great problems in generating shared meaning - and partly because fewer outcomes will prove easier to assess effectively. At this

stage we have no empirical evidence that they can be assessed in a way which would meet the needs of employers. The first certificates were only awarded in January 1997 and there is no data concerning their influence on any given individual's job success or career development. How such outcomes fit into existing qualification structures such as Masters degrees offered by individual universities has varied from university to university. Some have organised their qualification and assessment structure in such a way that the Masters degree automatically entitles a candidate to the EURESFORM Certificate. Others have seen it as an optional extra, requiring evidence of accomplishment additional to that in the Masters programme.

Where the decision makers are from different countries and for the majority English is not the first language, a key factor in achieving success in discussions is the development of 'soft' communication skills. It is especially important to be aware of nuances and potential corruption of meaning when translating the highly technical HRD vocabulary from one language to another. The research has contributed to new knowledge in HRD by 1. developing a composited set of domain specific learning outcomes that have currency across a range of countries and cultures and that are capable of being certificated to the benefit of individual and employer. 2. obtaining feedback from practitioners on how applicable common core learning outcomes are in their own country. 3. using Repertory Grid analysis with practitioners from different countries, to establish which of the outcomes have greatest and which least role significance, 4 By reporting back provisional comparisons between countries. 5. By the development of a field methodology to identify and assess HRD approaches and activities in different countries and enable tentative judgements to be made on the degree of convergence of HRD practice across Europe.

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The Video-Teleconference Distance Education Human Resource Development Graduate Classroom: Quantitative Evaluation Research Directed Toward Effective Practice

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This study reports on evaluation research on graduate level classes at Northern Illinois University in human resource development (HRD), delivered through video-teleconference distance education (VTDE). The authors discuss the approach to the course and provide analysis of the quantitative evaluation data.

Among the first video-teleconference distance education (VTDE) courses to be taught at Northern Illinois University (NIU) was a graduate-level course in human resource development (HRD). This course was delivered simultaneously to two classroom locations in the Spring and Fall semesters of 1995, and the Spring semester of 1996. HRD is an inter-professional field of study at NIU, drawing students from the program areas of adult continuing education, counseling, or instructional technology. The synergy produced by the mix of students is enhanced by the addition of interested students from other programs and departments, including business administration and public administration. The level of previous HRD experience among the students ranged from none to many years as practitioners in the field. The classes consisted of women and men who were recent college graduates or older career-changers, American and foreign nationals, part-time and full-time students, and employed and unemployed workers. All of the students were post-baccalaureate students-at-large or were enrolled in master's or doctoral degree programs.

The HRD course as delivered through VTDE had a two-fold purpose: (1) to provide an overview of theory, research, and practice relating to individual development, career development, and organizational development; (2) to acquaint students with the potential of an complexities involved in the VTDE classroom. It was expected that these present and future practitioners would learn, from this classroom experience, to employ VTDE confidently and intelligently in their own respective workplaces. In effect, the classroom became a laboratory in which students examined both the field of HRD and the operation of the VTDE classroom. The instructor, the site coordinators, and the students, through their practices, became role models for the class to emulate. This laboratory experience involved an immense amount of preparation on the instructor's part, including mastery of the VTDE system. According to Gehlauf, Shatz, and Frye (1991):

> Instructors do not want to be told how to teach; rather, they want to get a feel for the equipment and the specific technique they need to use to be more effective in interactive television classrooms. To facilitate this type of training, the technical system must be as "user friendly" as possible, so that the technology is transparent to the educational process. (p. 26)

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Among the strategies intended to maintain the transparency of the technology to the educational process were the services of two site coordinators. They were graduate students who had previously taken this HRD course. Their task was to prepare for classes by checking the quality of the VTDE system and connections, and to operate the system during classes with attention to sound and camera control. The instructor alternated between each site. While the instructor was at one site, the coordinator at the other site had the added responsibility of facilitating discussion groups, answering student's questions, and collecting or returning student papers and journals. Two models of site coordination were explored. In the Spring 1995 semester, a single site coordinator alternated with the instructor at two sites. In the Fall 1995 and Spring 1996 semesters, a student from each site acted as the site coordinator.

In the design of course content and process, it would have been easy to use a behavioral, structural approach to teaching and learning in a VTDE classroom. Instead the instructor based his approach firmly on a personal philosophy that embraced the principles of adult learning and development. One important principle of adult learning is the creation of a climate of trust to allay the anxieties of students confronting an unfamiliar delivery system and participating for the first time in an adult class. On the instructor's part, this climate of trust involves honoring each student's individuality--her or his special needs, interests, and rich life and work experiences. It is important that the course be designed so that students can share these experiences with each other. (For more discussion of the strategies selected for HRD classes, see Niemi and Owens (1996)).

Surveying the potential of technology to change the manner in which education can be delivered, Wedemeyer (1981) observed:

> What is different about learning via technology today is the scope of learning facilitated by technology, the altered roles of teacher and learners, the changed environment for learning necessitated by technology, and the sophistication of the processes used in developing instruction that will be communicated by technology. (p. 111)

The present research on distance education in general has shown evaluation by participants to be consistently among the best indicators of the effectiveness of the learning experience (Schlosser & Anderson, 1994; Sachs, 1993; Verduin & Clark, 1991). During the initial three semesters of VTDE delivery, the authors' goals for the evaluation process were threefold: (1) to supply formative data to the instructor and site-coordinators for the ongoing improvement of instruction; (2) to provide students with opportunities to participate in the evaluation process and reflect on their own learning experience as an integral assignment for the course; and (3) to supply summative data as the basis for planning future VTDE classes. It is in fulfillment of the third goal that the authors are sharing their research in this paper.

Data Collection

Quantitative data were obtained from the first three consecutive semesters of the HRD course delivered through VTDE. Qualitative data were also collected and analyzed to support conclusions suggested from the quantitative data, and vice versa. To meet the goals established for the evaluation process, it was necessary to collect a variety of data. The total data set includes:

- a written record of class activities, with special attention to problems directly related to VTDE delivery
- entries provided in bi-weekly student journals
- a summative evaluation instrument with narrative responses from the instructor and site coordinators

- a summative evaluation instrument with Likert Scale responses from students, identical to instruments distributed by academic departments to all other classes

- a summative evaluation instrument with both Likert Scale and narrative responses from students that queried the quality of their distance education experience.

The evaluation research data, because of their multi-source origin, provided a rich view of three successive HRD classes offered through VTDE. The narrative responses from the summative student instruments are available from the authors upon request.

Table 1
Academic Department Summative Evaluation
(Likert scale, 5 point ascending)

"How would you rate the overall effectiveness of this course?"

Spring semester 1995

Site	N	Mean	Standard deviation
DeKalb	14	4.36	0.81
DuPage	17	4.53	0.61

Fall semester 1995

Site	N	Mean	Standard deviation
DeKalb	12	4.25	0.60
DuPage	21	4.37	0.58

Spring semester 1996

Site	N	Mean	Standard deviation
DeKalb	15	3.86	0.75
Hoffman Estates	11	4.45	0.66

"How would you rate the overall effectiveness of the instructor?"

Spring semester 1995

Site	N	Mean	Standard deviation
DeKalb	14	4.50	0.73
DuPage	17	4.50	0.71

Fall semester 1995

Site	N	Mean	Standard deviation
DeKalb	12	4.58	0.49
DuPage	21	4.55	0.74

Spring semester 1996

Site	N	Mean	Standard deviation
DeKalb	15	3.93	0.92
Hoffman Estates	11	4.64	0.48

Discussion of the Academic Evaluations

Student evaluations of both the overall effectiveness of the course and the instructor were consistently high, except for the Spring, 1996 semester. The Hoffman Estates site gave the highest effectiveness scores during the three semester survey, but the DeKalb site gave the lowest effectiveness scores. The narrative responses at the DeKalb site, which was in a different distance education classroom from the Spring and Fall semesters of 1995, indicated problems with the learning environment. Seven of the fifteen students reported that the classroom temperature was much too warm. Another consistent complaint was the lack of sufficient tabletop microphones (an issue that was addressed prior to the next semester). The off-campus site, whether DuPage or Hoffman Estates, consistently scored the course effectiveness higher than did the DeKalb site, where the university is located. There may be two issues involved here, as suggested by student journals. First, the off-campus sites are located in suburban Chicago, and the students are mostly part-time students employed full-time in business and industry. Their impression is that VTDE allows them to attend a class that would be inaccessible to them unless they could commute. Second, for many students, this course was their only class during the semester and they were highly motivated to have a successful learning experience. The DeKalb students, on the other hand, reported that they perceived the VTDE delivery as an imposition to be endured. Many were full-time graduate students taking two or three other courses a semester. In their journals, the VTDE classroom is often compared to their other "traditional" classroom settings. A third issue peculiar to the DeKalb site was the addition of foreign students. Perhaps reticence about their English speaking was a factor in the overall lower evaluation the VTDE experience received from the DeKalb site, as contrasted with the DuPage or Hoffman Estates sites.

A closer analysis of selected classroom factors is available from the summative evaluation developed to assess the VTDE experience. The questions reviewed here were selected because they directly queried the distance education experience. The questions themselves appear in Table 2a. The descriptive statistics follow in the six sections of Table 2b.

Table 2 a
Distance Education Summative Evaluation

Survey Items
1. The on-site staff was helpful.
2. The teleconference effectively made up for the absence of the instructor.
3. I believe that there was more student interaction at my site when the instructor was present.
4. I believe that interaction between sites would be enhanced if each person submitted a brief, written, autobiographical sketch at the beginning of the course.
5. The instructor's teaching style, employed through this teleconference medium, facilitated my learning.
6. Compared to a regular class, I felt as comfortable learning, using distance education.
7. I reacted positively to seeing myself on camera.
8. The room provided a good environment in terms of physical needs (e.g. lighting, temperature, etc.).
9. I came to know classmates at the other site through dialogue, visual contact, or the joint colloquium.
10. Compared to a regular class, My class participation remained the same.
11. I found that the technical problems that occasionally occurred disrupted my overall experience in the class.

Table 2b
Distance Education Summative Evaluation
(Likert scale, 5 point ascending)

Spring semester 1995: DeKalb

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
Mean	3.636	3.000	3.273	2.818	3.364	3.364	1.818	2.545	2.727	2.455	1.727
Standard Error	0.203	0.191	0.195	0.296	0.152	0.195	0.296	0.366	0.359	0.312	0.273
Median	4	3	3	3	3	3	2	3	3	3	2
Mode	4	3	3	3	3	3	2	3	3	3	2
Standard Deviation	0.674	0.632	0.647	0.982	0.505	0.647	0.982	1.214	1.191	1.036	0.905
Sample Variance	0.455	0.400	0.418	0.964	0.255	0.418	0.964	1.473	1.418	1.073	0.818
Count	11	11	11	11	11	11	11	11	11	11	11
Confidence (95.0%)	0.453	0.425	0.434	0.659	0.339	0.434	0.659	0.815	0.800	0.696	0.608

Spring semester 1995: DuPage

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
Mean	3.533	2.533	3.333	2.667	3.067	2.867	2.867	2.400	2.667	3.000	2.667
Standard Error	0.133	0.165	0.187	0.187	0.153	0.133	0.165	0.214	0.287	0.098	0.126
Median	4	3	3	3	3	3	3	2	3	3	3
Mode	4	3	4	3	3	3	3	2	3	3	3
Standard Deviation	0.516	0.640	0.724	0.724	0.594	0.516	0.640	0.828	1.113	0.378	0.488
Sample Variance	0.267	0.410	0.524	0.524	0.352	0.267	0.410	0.686	1.238	0.143	0.238
Count	15	15	15	15	15	15	15	15	15	15	15
Confidence (95.0%)	0.286	0.354	0.401	0.401	0.329	0.286	0.354	0.459	0.616	0.209	0.270

Fall semester 1995: DeKalb

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
Mean	3.5	2.278	3.333	2.389	2.611	2.389	2.278	2.056	2.222	2.167	3.556
Standard Error	0.121	0.226	0.140	0.183	0.200	0.257	0.195	0.221	0.207	0.185	0.145
Median	3.5	2	3	2	2.5	3	2	2	2	2	4
Mode	4	2	3	2	2	3	2	2	2	2	4
Standard Deviation	0.514	0.958	0.594	0.778	0.850	1.092	0.826	0.938	0.878	0.786	0.616
Sample Variance	0.265	0.918	0.353	0.605	0.722	1.193	0.683	0.879	0.771	0.618	0.379
Count	18	18	18	18	18	18	18	18	18	18	18
Confidence (95.0%)	0.256	0.477	0.295	0.387	0.423	0.543	0.411	0.466	0.437	0.391	0.306

Fall semester 1995: DuPage

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
Mean	3.412	2.235	3.059	2.471	2.882	1.706	2.882	2.765	2.294	2.412	2.706
Standard Error	0.150	0.219	0.160	0.259	0.225	0.329	0.081	0.250	0.318	0.228	0.254
Median	3	2	3	3	3	2	3	3	3	2	3
Mode	4	3	3	3	3	3	3	3	3	3	3
Standard Deviation	0.618	0.903	0.659	1.068	0.928	1.359	0.332	1.033	1.312	0.939	1.047
Sample Variance	0.382	0.816	0.434	1.140	0.860	1.846	0.110	1.066	1.721	0.882	1.096
Count	17	17	17	17	17	17	17	17	17	17	17
Confidence (95.0%)	0.318	0.464	0.339	0.549	0.477	0.698	0.171	0.531	0.674	0.483	0.538

Spring semester 1996: DeKalb

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
Mean	3.231	1.385	3.308	2.154	2.231	1.923	2.538	1.846	2.231	2.462	2.615
Standard Error	0.122	0.241	0.414	0.317	0.378	0.309	0.243	0.317	0.281	0.215	0.350
Median	3	1	4	2	3	2	3	2	2	3	3
Mode	3	2	4	2	3	3	3	3	3	3	2
Standard Deviation	0.439	0.870	1.494	1.144	1.363	1.115	0.877	1.144	1.013	0.776	1.261
Sample Variance	0.192	0.756	2.231	1.308	1.859	1.244	0.769	1.308	1.026	0.603	1.590
Count	13	13	13	13	13	13	13	13	13	13	13
Confidence (95.0%)	0.265	0.526	0.903	0.691	0.824	0.674	0.530	0.691	0.612	0.469	0.762

Spring semester 1996: Hoffman Estates

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
Mean	3.5	2.222	2.889	2.500	3.056	2.167	2.833	2.333	2.722	2.500	2.278
Standard Error	0.121	0.250	0.279	0.232	0.221	0.218	0.202	0.229	0.158	0.218	0.211
Median	3.5	2	3	2	3	2	3	2.5	3	2.5	2
Mode	4	3	4	2	3	3	3	3	3	2	2
Standard Deviation	0.514	1.060	1.183	0.985	0.938	0.924	0.857	0.970	0.669	0.924	0.895
Sample Variance	0.265	1.124	1.399	0.971	0.879	0.853	0.735	0.941	0.448	0.853	0.801
Count	18	18	18	18	18	18	18	18	18	18	18
Confidence (95.0%)	0.256	0.527	0.588	0.490	0.466	0.459	0.426	0.482	0.333	0.459	0.445

Findings

Some responses were fairly consistent across each semester. The median score for Question 1, "The on-site staff was helpful," was 3 or higher, indicating general satisfaction. The question, "The teleconference effectively made up for the absence of the instructor," was problematic. As already inferred from the Academic Department Summative Evaluation (Table 1), the Spring, 1995 DeKalb site reported some of the highest scores, but the Spring, 1996 DeKalb site reported some of the lowest scores. For Question 2, the other sites responded with means in a close range between 2.222 to 2.533, slightly disagreeing. The Spring, 1995 DeKalb site had a mean of 3.00 and the Spring, 1996 DeKalb site had a mean of 1.385. These means were the high and low for all six sites.

All sites, except for Spring, 1996 Hoffman Estates site, agreed slightly that there was more student interaction at their sites when the instructor was present (Question 3), but the small differences in means from the midpoint do not indicate that the difference in interaction was a problem. All sites generally disagreed that an autobiographical sketch from each student, for distribution at both sites (Question 4), would enhance the interaction.

Responses to question 5, concerning the instructor's teaching style, were the clearest indicator of a halo effect. As noted for Question 2, the Spring, 1995 DeKalb site yielded the highest mean, and the Spring, 1996 DeKalb site yielded the lowest; however all the means were well below the means reported for instructor effectiveness (Table 1, Section 2). It would appear that the students clearly distinguished between the effectiveness of the instructor and the effectiveness of his teaching style as adapted to the teleconference medium. In evaluating the instructor, it is possible that the students assessed the additional difficulty of teaching through VTDE in the instructor's favor.

The Spring, 1995 DeKalb site reported a mean slightly higher than the midpoint for Question 6; all other sites reported below the mean, or disagreement that they felt as comfortable in a distance education learning environment as in a regular class. The Fall, 1995 DuPage site and the Spring, 1996

DeKalb site means show the strongest amount of disagreement. The latter is consistent with other responses, as has been noted, but the former (the Fall, 1995, DuPage site) response is more difficult to interpret because they are not consistent with their assessments of student interaction (Questions 3 and 4), reaction to the camera (Question 7) or environment (Question 8)--all questions that might indicate why they did not feel as comfortable learning through VTDE as in a regular classroom. All sites generally disagreed that they reacted positively to seeing themselves on camera. Likewise, none of the sites reacted positively toward the classroom environment (Question 8). The Spring, 1996 DeKalb site again had the lowest mean, but it is important to note, as before, that this class was held in a new distance education classroom, a different room from that used in Spring, 1995 and Fall, 1995 at the DeKalb site.

There was slight disagreement reported among the means from all sites to Question 10, "I came to know classmates at the other sites through dialogue, visual contact, or the joint colloquium." One factor influencing these responses may simply be the size of the total class per semester. The presence of thirty or more students is unusual in a graduate class, and the VTDE could only have magnified the difficulty in getting to know one's classmates for students used to seminars and other, more intimate class settings. Size may have also been a factor in Question 10. Again, there was slight, but general disagreement with the question, "Compared to a regular class, my class participation remained the same." These two questions together may show one of the difficulties involved in VTDE peculiar to graduate students, who expect a greater deal of interaction with, and access to the instructor and other students than do undergraduates.

Responses to question 11, concerning the disruptiveness of technical problems, also indicated disagreement which was encouraging. The Spring, 1995 DeKalb site posted the lowest mean. Responses to this question overall show that technical problems were not especially difficult for the students to overcome, but that adapting to VTDE delivery itself is the greater challenge.

Conclusions

All of the students at the two sites for the three semesters experienced VTDE for the first time. Although the instructor had prior experience with audio-conferencing, this was his first experience in delivering a course through VTDE. This study represents the teaching-learning transaction through the VTDE medium, and indicates the problem that must be overcome if this transaction is to be successful.

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Relationships Among Training, Performance, and Personal Characteristics of Graduates of Three Dietetic Training Programs

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Characteristics of academic and supervised practice performance, and self-efficacy perception of graduates of three dietetic training programs were described. A random sample was taken from entry-level dietitians, stratified by Dietetic Internship, Approved Pre-professional, or Coordinated Program. Subjects completed researcher-developed instruments, and SP directors completed performance forms. One-way ANOVA's and Duncan tests located group differences; Pearson rs established relationships; and ANCOVAs controlled for demographics. Relationships among groups, dietetic practice choice behaviors, and demographics were significant.

A long-held goal among dietetics leadership has been to establish greater understanding and linkages among academic and experiential training program outcomes and dietetics practice (Wellman & Bogle, 1990). Rapid changes in the future marketplace will affect growth and development of practice, and point to a current need to understand differences.

> Within our own field, we have the qualifications, the training, and the experience. ... We need the courage to perceive ourselves succeeding in new roles . . . to tap our vast creative potential, knowledge, and expertise to forge new goals and strategies. We must welcome new challenges and not be deterred by obstacles or problems. (Finn & Rinke, 1989, p. 1443)

This study addressed this goal, by describing relationships among training and performance outcomes, and self-efficacy perceptions which determine, in part, a person's strength of conviction that they can "forge new goals . . . new challenges and not be deterred by obstacles or problems" (Finn & Rinke, 1989, p. 1443). A major outcome of the data was to make recommendations to educational and experiential training program components, and entry-level dietetics practice. Furthermore, tests of variables developed for this study, can be recommended for use as formative measures during dietetic training programs, or career choice advising.

Graduates of dietetic training programs represent the pool of entry-level registered dietitians (RDs). The researcher hypothesized that differences in academic performance, supervised practice (SP) performance, self-efficacy perceptions in dietetic practice, and demographics; would exist among graduates and be explained by differences among three dietetic training programs. The dietetic training programs were (a) Dietetic Internships (DI), a didactic program, followed by a post-baccalaureate internship; (b) Approved Pre-professional Practice Program (AP4), a didactic program, followed by a post-baccalaureate approved pre-professional practice program; and (c) Coordinated Program (CP), which incorporated the baccalaureate degree, and a coordinated SP, into the same program.

The researchable problem statement was: Do dietetic training programs promote the growth and development of students equally, and in ways that contribute to graduates who are ready, able, and willing to pursue entry-level work in the field of dietetics? Three research questions within the problem statement were:

1. Do graduates of three dietetic training programs differ in study variables?
2. To what extent, and in what direction, are study variables related in the sample, and among graduates, of three dietetic training programs?
3. To what extent do demographic data explain relationships that exist in study variables?

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Literature Review

Differences in dietetic training programs is considerable. Variation in student and graduate ages, organization and timing of academic and SP components, and comprehensiveness of SP, suggest that variation should exist among graduates of DI, AP4, and CP. Graduates of dietetic training programs have been studied and found to vary in knowledge, skill, and attitude measures.

Several studies described differences in GPA, and paid and volunteer work experience (Bradley & Connor, 1993; Carruth & Sneed, 1990; Dietetics Education Task Force (DETF), 1993; English, 1995). For example, DI and AP4 students who advanced to SP, had significantly higher GPAs, than those who did not (DETF, 1993; English, 1995). Carruth & Sneed (1990) also identified letters of reference "that provided insight about the student . . . , e.g., flexibility and dependability" as important to elucidate differences among graduates applying to SP programs (p. 999). Measures have been correlated among training program graduates. Academic performance, measured as pre-major GPA, was correlated with major GPA in CPs (Hanson & Fruin, 1984; Pope & Gines, 1986). Two academic measures--sophomore GPAs and SAT math scores--predicted 88% of the variance in graduate GPA (English, 1995).

Bandura's Theory of Self-Efficacy was identified as the theoretical framework for the self-efficacy variable. In dialog with Evans (1989), Bandura addressed the relationship between efficacy beliefs and performance capability:

> Effective functioning requires that people develop competencies and skills. In addition, they need a strong self-belief in their own efficacy to put those skills to good use. ... Skills are a generative rather than a fixed capability and perceived efficacy plays a critical role in whether they are used well, poorly, or extraordinarily. ... A high sense of efficacy leads people to mobilize a high level of effort in which they undertake and persevere in the face of obstacles and difficulties. (pp. 53-54)

Bandura (1977a, 1977b) described self-efficacy perceptions as derived from four constructs: (a) judgment of capability to take action, even when faced with problems to overcome (choice behavior), (b) perception that one possesses certain knowledge and skill (efficacy expectation), (c) anticipated result or level of success (outcome expectation), and (d) different environmental events (sources of information). According to Bandura, self-efficacy is not a global trait, but an individual's belief in his or her ability to perform successfully in a given situation (Eckerson, 1995; Starko & Schack, 1989). "As such, self-efficacy should be studied as it relates to a particular behavior and context" (Eckerson, 1995, p. 3).

Substantial literature has shown correlations between self-efficacy and training programs, career choice, and/or educator/counselor practices (Bandura & Wood, 1989; Betz & Hackett, 1986; Eckerson, 1996; Gist, Schwoerer, & Ropsen, 1989; Gist, Stevens, & Bavetta, 1991; Guyton, Fox, & Sisk, 1991; Housego, 1992; Luzzo, 1996; Ozer & Bandura, 1990; Ramey-Gassert, 1992; Solberg, et al, 1994). Bandura and Wood (1989) had a most persuasive finding. When managers held outcome expectations that organizational events were controllable, they "maintained a strong sense of self-efficacy, set increasingly challenging goals, and exhibited effective analytic thinking" (p. 805).

Self-efficacy beliefs have been found to strengthen through variation of information sources (Bandura, 1986; Eckerson, 1995; Saks, 1995) as they "exert their effects on performance through cognitive, affective, or motivational processes" (Bandura, 1989, p. 733). Dietetics students in SP training components ranked activities with individual responsibility, as having the greatest degree of learning (Wolf & Dunlevy, 1996). An enlightening finding was that feelings of not being wanted or appreciated by the preceptor, wereamong the greatest sources of frustration. In Bandura's theory, the instructor, and practitioner-model are important source of information that participate in forming self-efficacy judgements.

Methodology

A comparative research design was used, in which four dependent variables were measured for three dietetic training programs: (a) undergraduate didactic plus an internship (DI), (b) undergraduate didactic plus an approved pre-professional program (AP4), and (c) a coordinated program (CP). Table 1 displays the dependent variables, measures, and values.

Table 1 Dependent Variables, Measures, and Values

Dependent Variables	Measures	Values
Academic Performance	GPA:	
	Overall	max 4.0
	Major	max 4.0
	Sciences	max 4.0
	RD Exam	a. total score b. number correct in five domains
SP Performance	20 Criteria	a. total of 20 criteria rated 1 to 5 each
Self-Efficacy Constructs	Choice Behavior Efficacy Expectation Outcome Expectation	a. construct (0-100) by area and scenario
Dietetic Practice	Three Areas:	
	Clinical Management Community	a. total (0-100) by area
	Nine Scenarios:	b. total (0-100) by scenario (1-9)
	Roles:	
	provide care manage resources provide programs	c. total (0-100) by role
	Settings:	
	acute-care long-term care residential treatment outpatient/ambulatory commercial/noninstitutional community public	d. total (0-100) by setting
Demographics	Age	years/months
	Work Experience:	
	total, paid	years/months
	dietetics-related, paid	years/months
	volunteer	years/months
	Professional Activity:	
	memberships	number
	meetings/continuing ed.	number

Variables. The independent variable, dietetic training program, measured Bandura's sources of information construct. The dependent variables were measured by three data sources and tools: (a) a researcher-developed Dietetic Practice Readiness Instrument completed by study subjects that included self-efficacy perceptions in dietetic practice, GPA, and demographics; (b) an American Dietetic Association (ADA) developed Performance Appraisal Form completed by SP directors for performance data; and (c) computerized ADA national registration examination data, a measure of academic performance.

Multiple measures of the dependent variable categories existed, as follows:

1. Academic performance had two: GPA, as (a) overall, (b) major, and (c) sciences; and RD exam scores, as (a) total, and (b) five subcategories.

2. SP performance had a total, cumulative score of 20 different criteria, rated using a subjective Likert scale.

3. Self-efficacy perception had three: efficacy expectation, outcome expectation, and choice behavior; and dietetic practice had two: area, as (a) clinical, (b) management, and (c) community; and scenario, as nine descriptive statements with a different role or setting as (a) provide nutritional care to individuals, (b) manage food and human resources, and (c) provide nutrition programs for groups; and settings, as (a) outpatient/ambulatory, (b) acute-care hospital, (c) long-term care facility, (d) residential treatment facility, (e) commercial/ noninstitutional, (f) community site, and (g) in the general public.

4. The demographics were three: age in years/months; years/months of work experience during the training program, as (a) total, (b) dietetics-related, paid; and (c) volunteer; and, extracurricular professional activities during the training program, as (a) number of professional memberships, and (b) professional meeting or continuing education program attendances.

Researcher-Developed Instrument. The Dietetic Practice Readiness Instrument tested Bandura's three other constructs in contextually specific practice scenarios. Twelve descriptive statements comprehensively portrayed dietetic practice, three in traditional, entry-level positions of clinical, foodservice management, and community; and nine with a variation in role: providing nutritional care, managing food and human resources, and providing nutrition programs to groups; or setting: acute, long-term, community, ambulatory/outpatient, commercial/non-institutional; and individuals or groups in communities, and groups in the general public (Kane, et al, 1990). For example, Scenario #1 read: In this position, you will work in an acute-care hospital to provide nutritional care to individuals, including identifying nutrition-related needs and teaching/counseling patients/families.

To test three self-efficacy constructs, three questions asked subjects to rank judgments for each descriptive statement. These questions, and corresponding construct, were: (a) "How likely are you to choose this position?" for choice behavior; (b) "How would you judge your current ability *to perform* in this position?" for efficacy expectation, and (c) "How likely are people *to improve* with you in this position?" for outcome expectation. An 11-point Likert scale--from zero to 100, in 10 point increments--quantified the strength of response for each question by descriptive statement. For example, for choice behavior, this terminology was used for the scale:

0	10	20	30	40	50	60	70	80	90	100
Very Unlikely			Somewhat Unlikely			Somewhat Likely			Very Likely	

Results

The purpose of Research Question One was to describe differences in dependent variables that existed among graduate groups. Significant findings existed in self-efficacy in dietetic practice areas, and scenarios, and in demographics.

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First, significant between group difference existed in the self-efficacy construct, choice behavior, for two dietetic practice areas: clinical (F=5.950, p=.0030), and management (F=2.658, p=.072). This indicated those graduates of CP (M=7.984) and DI (M=7.678), were significantly more likely, than graduates of AP4 (M=6.429), to choose a clinical dietitian position; and graduates of CP (M=8.318) were significantly more likely, than graduates of AP4 (M=7.743), to choose a foodservice management dietitian position.

Second, significant between group difference existed in one self-efficacy construct, measured by five scenarios; and two self-efficacy constructs, measured by on scenario. In four of these, the significant between group differences were in the self-efficacy construct, Choice Behavior. Both graduates of DI and CP reported that they were significantly more likely, than graduates of AP4, to provide nutritional care to individuals, in both, acute-care hospital and long-term care settings.

Graduates of CP (M=5.238) also reported that they were significantly more likely, than AP4s (M=4.188), to work in a long-term setting in a position to manage food and human resources. Neither, however, rated the choice above a Somewhat Unlikely level. CPs (M=7.206) also reported a significantly greater likelihood, than AP4s (M=6.203), that they would choose to provide nutritional care to individuals in a community setting.

In the fifth scenario, the single self-efficacy construct, of significance, was Outcome Expectation. Graduates of AP4 (M=7.2143) reported a significantly greater likelihood, than either DIs (M=6.528) or CPs (M=6.460), that operations would improve with them in the position, to manage food and human resources, in an acute-care hospital. In one scenario, significant difference between groups existed for two constructs, Efficacy Expectation (F=2.844, p=.0603), and Outcome Expectation (F=2.804, p=.063). Graduates of AP4s (M=8.529) reported a significantly higher judgment, than CPs (M=7.937), that they could perform in a position, to provide nutrition programs for groups in the general public. Additionally, AP4 graduates (M=8.443) reported a significantly greater likelihood, than either DIs (M=7.956) or CPs (M=7.937), that people would improve with them in the position, to provide nutrition programs for groups in the general public.

Third, there was significant between group difference in the demographic variable, age (F=6.019, p=.003). Both graduates, of AP4 (M=32.035) and CP (M=30.652), were significantly older than graduates of DI (M=27.953).

Research Question Two was formulated to examine the strength of relationships between pairs of dependent variables (bivariate) in the sample, and when significant, in dietetic training program groups. The purpose of calculating additional correlations by group was first, to locate significant relationships within one or more dietetic training program group, and second, to identify the strength of significant relationships by group.

A significant positive relationship, of moderate strength, existed between Management Choice Behavior and Clinical Choice Behavior, for DIs (r=.471, p=< .01) and AP4s (r=.490, p=≤ .01). A significant relationship existed between Clinical Choice Behavior and Community Choice Behavior for DIs (r=.350, p≤ .01), and AP4s (r=.362, p≤ .01). Neither of these relationships were significant for CPs. A significant relationship existed between Management Choice Behavior and Community Choice Behavior for DIs (r=.474, p=≤ .01), AP4s (r=.602, p=< .01), and CPs (r=.616, p=< .01).

Discussion

Graduates, of AP4s, were the only group, to report significantly higher self-efficacy perceptions in dietetic practice. AP4s perceived themselves to be significantly more efficacious, than DIs or CPs, in management and community dietitian roles. They also reported a significantly stronger belief, than DIs or CPs, that the public would improve with them in the community role. AP4s were also as likely to pursue positions as a community, clinical, *or* management dietitian, and were significantly less likely to choose a clinical position, than DIs or CPs. Because of the abundance of clinical dietitians, and the need for efficacious practitioners in expanding management and community roles, AP4 graduates in this study had valuable practitioner characteristics.

It appears from these results, that AP4s are more likely to pursue positions to provide nutrition programs to the general public. In addition, they alone, are more likely to perceive themselves as able to perform the position, and likely to help people improve as a result of their performance. These

graduates were significantly older than DIs, by 5 years, and on average, were 1.4 years older than CPs. To the extent that age translates into maturity, and with results of increased efficaciousness and perceived potential for improved outcomes, graduates of AP4 possess characteristics desired in practice.

AP4 training programs are typically shorter in length, focus in one area (management, clinical, or community); and can be completed on a part-time basis. These program elements represent expediency in training, that enables older individuals to make a shorter overall time commitment. The result in this study, was more efficacious individuals who perceive themselves able to work and succeed in areas that promote growth and development of dietetics practice.

Conclusions

This research contributed new knowledge about personal characteristics, including self-efficacy perceptions, among graduates of different training programs in one field of practice. Additionally, it pointed to important relationships among training and performance outcomes and practice perceptions. Examining entry-level dietitian differences contributes to understanding what they choose to do, how much effort they intend to invest, how long they will "persevere in the face of disappointing results, and whether tasks are approached anxiously or self-assuredly" (Bandura, 1986, p. 21).

Academic and supervised practice performance are only two measures that relate to future practice potential. While commonly used, they may be insufficient as measures of practice potential in today's world of work. According to Bandura (1982), people with a stronger sense of self-efficacy will decide to approach a complex situation due to their expectation of success. Conversely, people with a weaker sense of self-efficacy will decide to avoid participation in a complex situation due to their expectation of failure. A changing dietetics practice field represents an increasingly complex situation in which more efficacious practitioners would be desired. Differences that result in self-efficacy perceptions, by dietetic training program, are also important in relationship to practice potential.

Entry-level practice in HRD is also increasingly complex, and occurs in a rapidly changing workplace. These environments need practitioners who can increasingly cope with novel and changing situations. Description of characteristics of entry-level registered dietitians can inform HRD training and practice in some areas, and encourage application of these research methodologies to HRD. These results can inform other entry-level practitioners, such as those in HRD, who have difference in training programs and an increasingly challenging marketplace.

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